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OWNER'S MANUAL AND PARTS BOOK

WALK-BEHIND POWER TROWELS

BC90/BC436
BC120/BC446

ORIGINAL LANGUAGE

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ORIGINAL LANGUAGE OPERATING INSTRUCTIONS FOR BARTELL WALK-BEHIND POWER TROWELS

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Revision	Date	Description	Approved by.
0	05/2012	Initial Release	AL
1	07/2012	Spiderplate assembly part number update.	AL
2	08/2012	BC90 and BC120 throttle cables updated.	AL

SAFETY PRECAUTIONS	
	⚠ **DANGER** **EXPLOSION HAZARD** Never operate the machine in an explosive atmosphere, near combustible materials or where ventilation does not clear exhaust fumes.
	WARNING **BURN HAZARD** Never come into contact with the engine or muffler when engine is operating or shortly after it is turned off. Serious burns may occur.
	⚠ **CAUTION** **ROTATING HAZARD** Never place hands or feet inside safety guard rings. Serious injury will result from contact with rotating blades.
	⚠ **CAUTION** **MOVING PARTS** Before starting the machine ensure that all guards and safety devices are in place and functioning properly.
	⚠ **ATTENTION** **READ OWNERS MANUAL** Read and understand operator's manual before using this machine. Failure to follow operating instructions could result in serious injury or death.

TABLE OF CONTENTS

QUALITY ASSURRANCE MACHINE BREAK-IN 4
WALK-BEHIND POWER TROWEL WARRANTY 5
MAINTENANCE RECORD 6
ROUTINE SERVICE INTERVALS 7
SAFETY PRECAUTIONS 9
ASSEMBLY INSTRUCTIONS 9
1. TROWELS 9
2. STABILIZER RING 9
3. HANDLE ASSEMBLY 9
4. STATIONARY RING 9
5. ENGINE CONTROLS 9
6. BELT GUARD 9
DIAGRAM 1 10
OPERATION (FLOATING) 11
OPERATION (FINISHING) 11
1. STARTING PROCEDURES - WARM TEMPERATURES 11
2. STARTING PROCEDURES - COLD TEMPERATURES 11
3. STOPPING PROCEDURES 11
LUBRICATION 11
1. ENGINE OIL 11
2. SPIDER PLATE 11
3. GEARBOX 11
4. GEARBOX OIL CHANGE 11
5. GREASE FITTINGS 11
ENGINE OIL SPECIFICATION 11
STORAGE 12
MAINTENANCE 12
1. AIR CLEANER 12
2. LUBRICATION 12
3. SPARK PLUG 12
4. BELT TENSION 12
TROWEL ARM ADJUSTMENT FIXTURE 13
1. ADJUSTMENT PROCEDURE 13
PARTS MANUAL (BC90/BC436) 14
SPIDERPLATE ASSEMBLY (BC90/BC4336) 15
HANDLE ASSEMBLY - COMPLETE (BC90/BC436) 16
GEARBOX ASSEMBLY - COMPLETE (BC90/BC436) 17
SAFETY RING ASSEMBLY/MTG PLATE (BC90/BC436) 18
ENGINE/CLUTCH/HOIST HOOK ASSEMBLIES (BC90/BC436) 19
PARTS MANUAL (BC120/BC446) 20
SPIDERPLATE ASSEMBLY (BC120/BC446) 21
HANDLE ASSEMBLY - COMPLETE (BC120/BC446) 22
GEARBOX ASSEMBLY - COMPLETE (BC120/BC446) 23
SAFETY RING ASSEMBLY/MTG PLATE (BC120/BC446) 24
ENGINE/CLUTCH/HOIST HOOK ASSEMBLIES (BC120/BC446) 25
TROUBLESHOOTING 26
SPECIFICATIONS 27
COMPANY INFORMATION 28
NOTES 30

QUALITY ASSURANCE / MACHINE BREAK IN

The Bartell Walk-Behind Power Trowel is the product of extensive engineering development designed to give long life and unmatched performance. The Walk-Behind Power Trowels are shipped partially assemble, and only require filling with fuel and a brief check of lubricant levels in preparation for operation.

You can help ensure that your Power Trowel will perform at top levels by observing a simple routing on first use. Consider that your new Power Trowel is like a new car. Just as you would break in a new car to the road or any new machine to the job, you should start gradually and build up to full use. Learn what your machine can do and how it will respond. Refer to the engine manufacturer's manual for run-in times. Full throttle and control may be used after this time period, as allowed by material. This will serve to further break in the machine on your specific application, as well as provide you with additional practice using the machine.

We thank you for the confidence you have placed in us by purchasing a Bartell Walk-Behind Power Trowel and wish you many years of satisfied use.

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WALK-BEHIND POWER TROWEL WARRANTY

- All products sold by Bartell Morrison Inc. and Bartell Morrison (USA) LLC (the "Company") are warranted against defects in materials and/or workmanship; excluding normal wear on wearing components and components covered by a separate original manufacturers warranty, for a period of 24 months from the date of sale to the original end user purchaser provided that certain conditions have been met.

  Conditions:

  1. The equipment serial number has been registered with the Company or its approved dealers, distributors, representatives or agents.
  2. The equipment has been operated in an appropriate manner by qualified individuals.
  3. The equipment has been properly maintained as per the instructions included in the Owner's Manual.
  4. All claims for warranty must be filed on proper forms and include the serial number of the equipment along with proof of purchase.

  Any evidence of failure to meet these conditions may result in a denial of the warranty claim.
- Consideration of warranty claims will be at the sole discretion of the Company, or its authorized dealers, distributors, representatives or agents.
- The Company may, at its discretion, request that the equipment to be considered for warranty be returned at the owner's expense to an authorized repair facility for inspection.
- Under this warranty we may, at our discretion, repair or replace a part or the whole of the defective component or equipment.
- Our Warranty coverage is limited to the cost to repair or replace the defective portion of the equipment and a reasonable (as determined by the Company) amount of labour to conduct the repair or replacement. Under no circumstances shall the Company be liable for any additional or exceptional costs beyond the cost to repair or replace the defective portion of the equipment. The Company shall not be held accountable for; costs associated with travel to inspect or repair defective equipment, costs for transporting defective equipment to or from an authorized repair facility, costs incurred to repair or replace the defective equipment at any facility other than one authorized by the Company or ancillary damage caused by or as a result of the defective equipment.
- Under no circumstances shall equipment be returned to the Company or its authorized dealers, distributors, representatives or agents without the approval of the Company as evidenced by a Returned Goods Number. To obtain a Returned Goods Number contact the factory or your authorized dealer, distributor, representative or agent.
- This warranty is for the sole benefit of the original end user purchaser and is not transferable to any other company or person.

MAINTENANCE RECORD

PREVENTATIVE MAINTENANCE AND ROUTINE SERVICE PLAN

This Walk-Behind Power Trowel has been assembled with care and will provide years of service. Preventative maintenance and routine service are essential to the long life of your Power Trowel. Your dealer is interested in your new machine and has the desire to help you get the most value from it. After reading through this manual thoroughly, you will find that you can do some of the regular maintenance yourself. However, when in need of parts or major service, be sure to see your Bartell dealer. For your convenience we have provided this space to record relevant data about your Walk-Behind Power Trowel. When in need of parts or service be prepared to provide your Trowel serial number. Locate the serial number now and record in the space below.

Date Purchased:		Type of Machine:	
Dealer Name:		Model:	
Dealer Phone:		Serial Number:	

REPLACEMENT PARTS USED				MAINTENANCE LOG	
PART NO.	QUANTITY	COST	DATE	DATE	OPERATION

Routine Service Intervals		Each use	After 1.5 months or 50 hrs	Each 3 months or 100 hrs	Each 6 months or 200 hrs	Each 9 months or 300 hrs	Each 12 months or 400 hrs
General Inspection:							
Guards	Check		o	o	o	o	o
Warning stickers	Check		o	o	o	o	o
Test run:	Check operation		o	o	o	o	o
Controls:							
Dead-man switch operation	Check	o	o	o	o	o	o
Pitch control	Check	o	o	o	o	o	o
	Lubricate		o	o	o	o	o
Engine:							
Engine oil	Check Level	o	o	o	o	o	o
	Change		o		o		o
Engine oil filter	Replace				o		o
Oil cooler	Clean			o	o	o	o
Cooling Fins	Clean		o	o	o	o	o
Air cleaner	Check - clean	o	o	o	o	o	o
	Replace						o
Air Intake Line	Check				o		
	Replace						2 yrs
Drive Belt	Check tightness				o		o
	Replace						500 hrs
Valve clearance	Check-adjust				o		o
Fuel filter	Check & Clean			o	o	o	o
	Replace				o		o
Fuel Tank	Clean						500 hrs
Engine wiring	Check						o

Routine Service Intervals

Due to the nature and environment of use, Walk-Behind Power Trowels could be exposed to severe operating conditions. Some general maintenance guidelines will extend the useful life of your trowel.

- The initial service for your power trowel should be performed after 25 hours of use, at which time your mechanic (or authorized repair shop) should complete all of the recommended checks in the schedule above. The chart on page 6 (six) is handy for keeping a record of the maintenance performed and the parts used for servicing your trowel.
- Regular service according to the schedule above will prolong the life of the Walk-Behind Power Trowel and prevent expensive repairs.
- Keeping your Walk-Behind Power Trowel clean and free from debris is the single most important regular maintenance operation, over and above the checks in the service schedule above, that can be performed. After each use your Walk-Behind Power Trowel should be cleaned to remove any dust and debris from the undercarriage and surrounding components. Use of a power washer will make clean up quick and easy, especially if a non-stick coating was applied prior to use.
- In the Service Schedule above, items that should be checked, replaced or adjusted are indicated by “o” in the appropriate column. Not all Walk-Behind Power Trowel models include the same features and options and as such not all service operations may have to be performed. For ease of recording place a checkmark (√) through the “o” when the item is complete. If an item is not required or not completed place an “x” through the “o” in the box.
- All Walk-Behind Power Trowels have governed engine speed of 3600 rpm. See engine manufacturer’s manual for exact specifications. Care should be used when making any adjustments to the Walk-Behind Power Trowel not to change the governed speed.
- Failure to have your Walk-Behind Power Trowel regularly serviced and properly maintained in accordance with the manufacturer’s instructions will lead to premature failure and void the warranty.

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SAFETY PRECAUTIONS

- Always keep unauthorized, inexperienced, untrained people away from this machine.
- Rotating and moving parts will cause injury if contacted. Make sure guards are in place. Keep hands and feet away from moving parts.
- Fuel the machine only when the engine is stopped, using all necessary safety precautions.
- The engine must always be stopped before attempting any repair or adjustments. Ignition switch should be off.
- Be careful not to come in contact with the muffler when the engine is hot, serious burns may result!

DANGER:
Never operate the machine in an explosive atmosphere, near combustible materials or where ventilation does not clear exhaust fumes. Repair fuel leaks immediately. Refer to your engine owner's manual for more safety instructions.

ASSEMBLY INSTRUCTIONS

Your new Bartell Walk-Behind Power Trowel has been shipped to you partially assembled. Filling the fuel tank and a brief check of lubricant levels in preparation for operation is required. To complete the assembly the following instructions will be helpful.

1. **TROWELS** – Attach trowel blades with screws and lock washers supplied. See (A) and (B) Fig. 1. Be careful that adjusting screw (C) does not protrude below arm when attaching blades. This could cause the machine to jump and promote excessive wear in operation.
2. **STABILIZER RING** – (if supplied) Install using screws, bushings and lock washers supplied. See Fig. 1 (D)
3. **HANDLE ASSEMBLY** – Put cable end Fig. 2 (A) through hole in yoke (B) and secure with nut (C), then install handle bracket on gearbox. To get proper cable tension, turn control knob Fig. 3, counter-clockwise to stop position. Guide screw (B) will now be at the bottom slot. Tighten nut Fig. 4 (A) until slack is removed from point (B) as indicated. If more than 2 or 3 threads show through, then nut should be turned back.
   Guide screw, Fig. 3 (B) should be moved to next lower hole in slide bushing and cable re-adjusted as above. Turn hand knob completely clockwise and check for clearance between yoke and gearbox at point (C) Fig. 4. There should be enough space to pass a business card through.
4. **STATIONARY RING** – Install stationary ring as shown in Fig. 5 with the side bar on engine recoil side. (May not be exactly as shown). Install rubber bushings (A) on top and bottom of mounting plate. Install metal caps (B). Place ring on top and run screw (C) through caps and rubbers. Tighten lock nut (D) securely on bottom. It is best to start nuts on all 4 corners before tightening.
5. **ENGINE CONTROLS** –
   The throttle cable must be cut and formed to fit. Feed the cable through the cable clamp on the engine. Pull the cable through the clamp until it forms a smooth arc from the handle to the engine. Mark the cable at the clamp and pull the cable back from the casing at the throttle. Without cutting the cable, Cut casing at the mark and push the cable back through fresh cut end. Form a small "L" bend in the cable, hook the inner cable into the throttle block and tighten cable clamp down onto the casing. With thumb lever and throttle block in the fully open position, cut the inner cable by the thumb lever, leaving enough wire exposed to secure to the lever. Insert the cable into the fitting and tighten the screw. Restore throttle to idle position.

IMPORTANT:
Before running machine with belt installed, ensure that engine idles properly and that the safety-switch shuts off the engine.

6. **BELT GUARD** – Install after machine has been tested, taking care that it does not touch clutch or pulley.

ATTENTION:
For any information regarding engine adjustments, please refer to the engine manual supplied.

DIAGRAM 1

Fig. 1

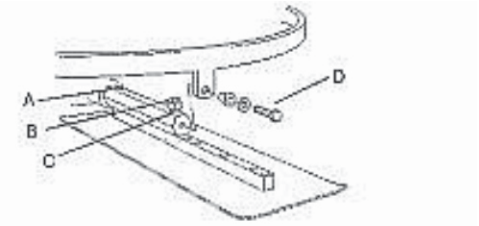


Fig. 2

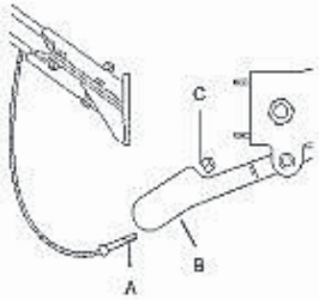


Fig. 3

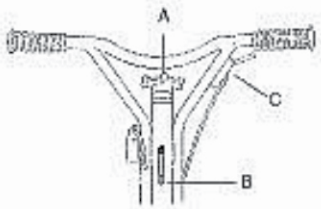


Fig. 4

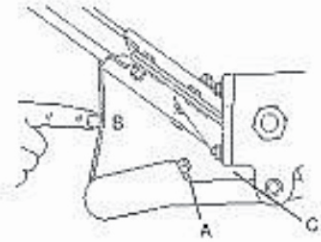
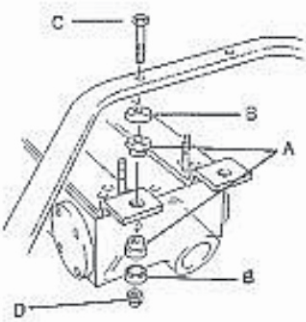


Fig. 5



OPERATION (Floating)

When the slab has set sufficiently firm that the operator's footprint leaves a very slight depression on the surface of the slab, it is ready for the floating operation.

Under normal operating conditions the machine should cover as much as 1000 sq. ft. in about 15 minutes. It is recommended that a slight tension on the trowel control cable, (but *not* a definite tilt), during the floating operation will cause the machine to operate much smoother. After the floated slab has set sufficiently, it is ready for the finishing operation.

CAUTION:
Do not let the machine stand in one spot on the soft cement. Lift from the slab when the floating operation is complete.

OPERATION (Finishing)

When starting the finishing operation, never set the trowels up over 1/4" pitch. This is important. Guiding the machine on the slab is very simple, a slight upward lift of the handle causes the machine to travel to the left. Holding the handle in the neutral position, will slowly cause the machine to spin in one spot. Slight downward pressure on the handle causes the machine to travel to the right. Best results are obtained by covering approximately 4" on each turn. In other words, let the machine move right or left, backwards or forwards, approximately 4" with each revolution of the trowels. To fill a hole or cut down a hump, move the unit back and forth over the problem area.

After the first pass over the slab, the waiting time between operations is determined in the same manner as if you were hand troweling. To repeat; the entire application and action of the troweling machine in regard to getting on the slab, and the correct pitch of the trowels, is determined in the same manner as would be used by a cement finisher when troweling by hand.

STARTING PROCEDURE: **WARM CLIMATE*

Open fuel valve on gas tank. Set throttle lever to "Fast" idle position, set choke to closed position, start engine. Open choke slightly to prevent flooding. Move to "Open" or "Run" position when engine is warm, increase throttle to maximum operation position (3600 rpm).

STARTING PROCEDURE: **COLD CLIMATE*

Follow same procedure as above but allow longer warm-up period – 3 to 5 minutes. In cold weather, oil is much heavier to move and requires more time to work its way into the moving parts. If maximum power is not attained, allow further warm-up time. Fill fuel tank with clean gasoline, use safety approved gas containers. DO NOT MIX OIL WITH GASOLINE – USE UNLEADED GAS ONLY.

STOPPING PROCEDURE

1. Throttle engine down.
2. Turn off stop switch.

LUBRICATION

1. ENGINE OIL

The long life and successful operation of any piece of machinery is dependent on frequent and thorough lubrication.

Before using the trowel, always check your engine for oil. Use proper engine oil as recommended in the engine manufacturer's manual. Fill crankcase to levels as recommended.

ENGINE OIL SPECIFICATIONS

	Grade of Engine Oil
All Seasons	SAE 10W-30

2. SPIDER PLATE

There are 4 (four) grease fittings on the spider plate, each must be greased daily. ***THE SPIDER PLATE MUST BE GREASED EVERY TIME MACHINE IS USED.***

3. GEARBOX

Check the oil level sight plugs on both gearboxes daily to ensure the oil is half way on the site glass. Top up with Agma 8 compounded gear oil only. Gearbox capacity 16 oz. to 19 oz. (473ml. To 562ml.) Example: Esso/Exxon Cylesstic TK680.

4. TO CHANGE GEARBOX OIL

Place a pan beneath the drain plug to catch the oil. Remove the drain plug and the filler plug from the gearbox. After the oil has drained completely, replace the drain plug and tighten. Fill the gearbox through the filler plug with 16 oz. to 19 oz. (473ml. To 562ml.) of Agma 8 compounded gear oil. Replace the filler plug and tighten.

STORAGE

The following steps should be taken to prepare your Walk-Behind Power Trowel for extended storage.

1. Close fuel shut off valve.
2. Siphon excess gasoline from tank.
3. Start engine until it stops from lack of fuel. This will use up all the fuel in the carburetor and prevent formation of deposits due to evaporation of fuel.
4. Remove spark plug and pour 2 oz. of SAE 10W 30 motor oil into the cylinder. Slowly crank the engine 2 or 3 times to distribute the oil throughout the cylinder. This will help prevent rust during storage. Replace spark plug.
5. Store the unit in an upright position in a cool, dry, well ventilated area.

MAINTENANCE

Maintaining your Walk-Behind Power Trowel will insure long life to the machine and its components.

AIR CLEANER - Keep air filter clean at all times. Wash away dust and debris using a non-oil based cleaning solvent. Let the filter dry before re-installing.

LUBRICATION – Check engine oil regularly. Use proper engine oil as recommended. See previous chart. Fill crankcase to levels as recommended in manufacture's engine manual.

SPARK PLUG – Check and clean spark plugs regularly. A fouled, dirty or carboned spark plug causes hard starting and poor engine performance. Set spark plug gap to recommended clearance. Refer to engine manual.

BELT TENSION – *IMPORTANT!*

If there is excessive belt play, there will be a decrease in the power transmission capability which could lead to premature wear and failure of the belt. The normal belt play should be 1/2" to 5/8" which is attained by depressing one side of the belt at the mid-point of the span between pulleys. Tighten all engine mount fasteners.

TROWEL ARM ADJUSTMENT FIXTURE

PART #20801

Ex: Unit 36" (B436)

1) Trowel arm
2) Lift lever
3) Jam nut
4) Set screw
5) Block top
6) Bolt
7) Jam nut
8) Carriage bolt
9) Adjustment bar
10) Bolt

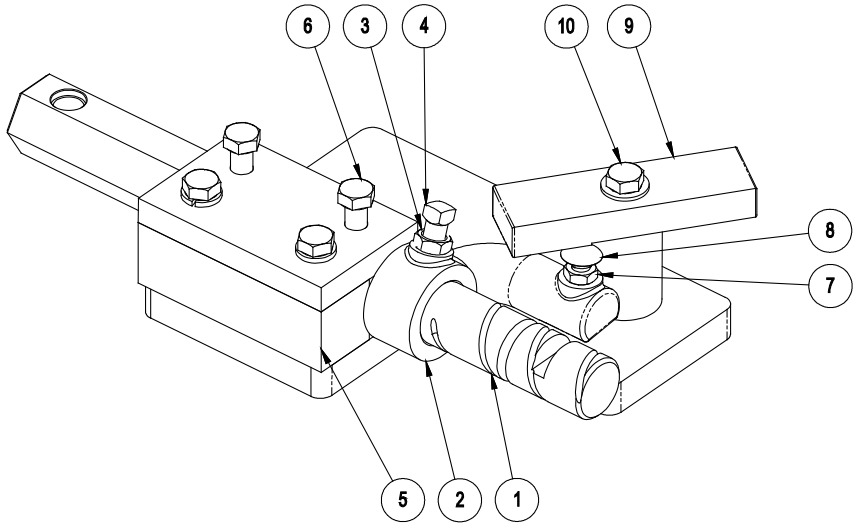


Figure 5a.

The trowel arm adjustment fixture (20801) is reversible. By rotating the arm clamping fixture and the ring bolt, both left hand and right hand trowel arms may be adjusted. Before attempting adjustment, determine whether the trowel arm is right handed or left handed. When adjusting left hand trowel arms use the side of the fixture marked "L". When adjusting right hand trowels arms use the opposite side. The adjustment bar will be set on "36" for the Walk-behind trowel arm.

ADJUSTMENT PROCEDURE

1. Remove all trowel arm assemblies (1 & 2 arm and attached lift lever) from suspected maladjusted spider plate.
2. Remove lift lever (2) from trowel arm (1) by first loosening jam nut (3) then square head screw (4). If upon inspection (method left to discretion of serviceman) any trowel arm (1) is found to be in a bent condition, it must either be brought back to its original straight condition (method left to the serviceman's discretion) or replaced with new part.
3. Replace lift levers (2) on new or straightened arms (1) by reversing procedure as described above.

   NOTE: IT IS IMPORTANT THAT WHEN TIGHTENING SQUARE HEAD NUT (4), IT SEATS ITSELF SECURELY INTO DIMPLE MACHINED IN ARM.
4. Place trowel arm assembly (1 and 2) in fixture (5) with lift lever (2) butting up against fixture. Clamp in place with bolts (6).
5. Loosen locknut (7) and screw carriage bolt (8) down to full depth allowable. This will provide for ample clearance to swing precision ground adjustment bar (9) over head of carriage bolt. Adjustment bar (9) is stamped for appropriate size of machine. Swing appropriate side directly over carriage bolt (8) and secure in place with bolt (10).
6. Adjust carriage bolt (8) upwards until contact is made with adjustment bar (9); holding carriage bolt in position with one wrench, tighten locknut (7) to secure in position with second wrench.

   NOTE: IT IS VITALLY IMPORTANT TO ENSURE THAT ONCE THE CARRIAGE BOLT IS ADJUSTED TO THE CORRECT HEIGHT, IT DOES NOT MOVE BEFORE, OR DURING THE TIGHTENING OF LOCKNUT.
7. This same procedure is to be followed with ALL arms from spider plate assembly, and will ensure correct and exact adjustment.

TROWEL ARM ADJUSTMENT SCREW

The trowel arm adjustment screw is to be used for field adjustment of blade level, in the event of a damaged trowel arm, to enable completion of the job. At the end of the job repairs should be made to eliminate the damage.

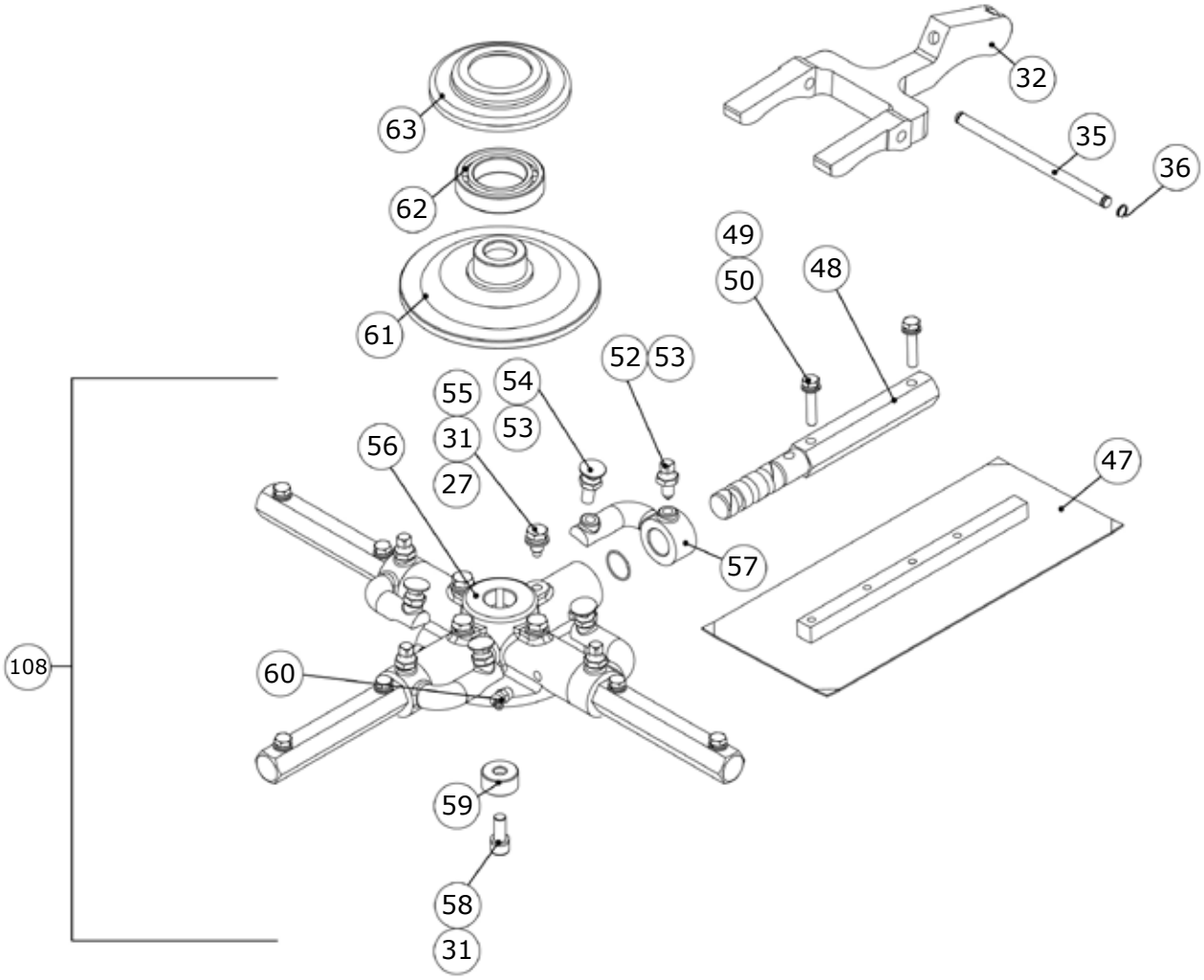
When assembling trowel blades to trowel arms, the adjustment screw should NEVER protrude below the under-side surface of a trowel arm.

If the adjustment screw is not flush with the underside of the trowel arm, then this will cause the power trowel to bounce and vibrate especially at high speed. This will also cause the trowel blades to leave an uneven finish to the concrete due to the blades not being level to one another.

Make certain that the adjusting screw is held firmly in place while tightening the bolt which secures the blade to the trowel arm.

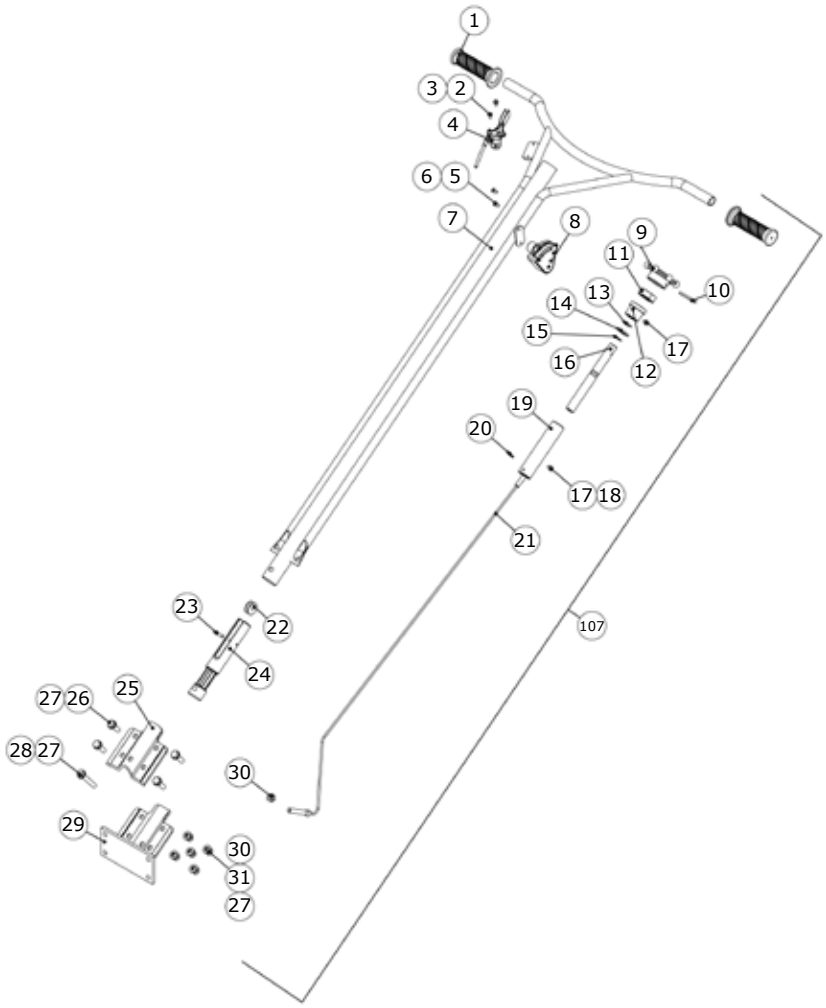
BC90/BC436
ASSEMBLY DRAWINGS AND PARTS LIST

SPIDERPLATE ASSEMBLY (BC90/BC436)



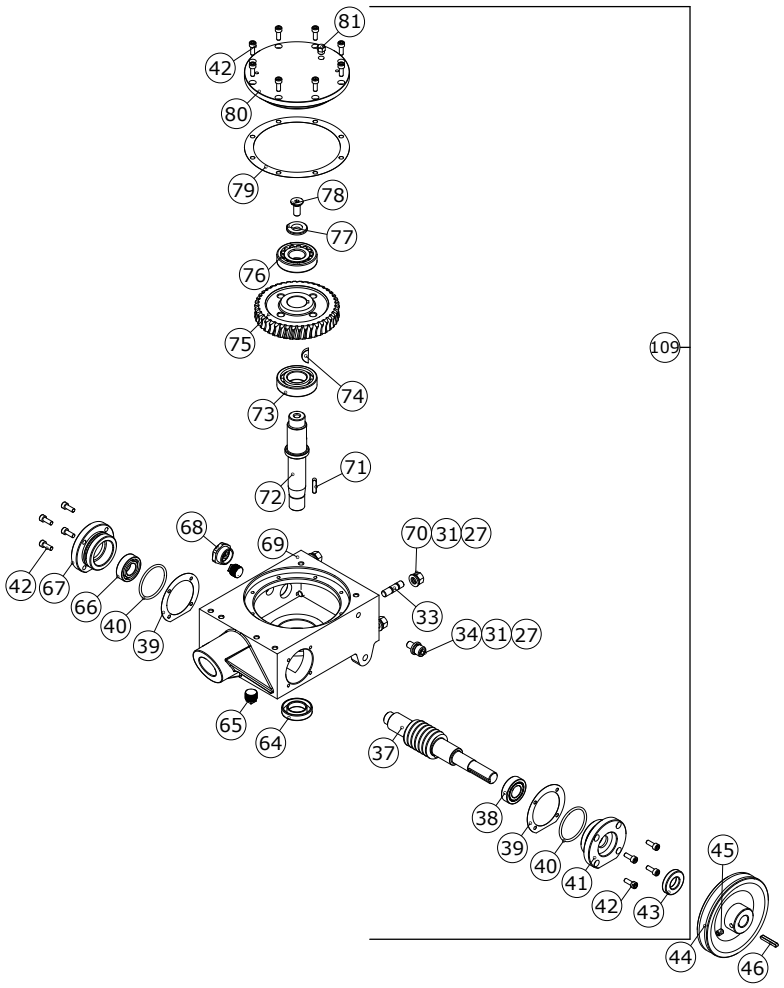
Item	Part Number	Description	Qty.	Item	Part Number	Description	Qty.
27	10897	Flat Washer, 10mm	4	52	10755	Square head set screw, M10, 1.5 lg	4
31	11621	Lockwasher, M10	2	53	10867	Hex Jam Nut, M10-1.5	4
32	10200	Yoke Arm, sm	1	54	10757	Carriage Bolt	4
35	10349	Yoke Arm Pin	1	55	10758	Blade lock bolts	4
36	10743	Lock Pin, 10mm	1	56	10000	Spiderplate	1
47	20646	Finish Blade - metric	4	57	10681	Lift Lever, sm	1
	20415	Clip on Float - 10”x14”	4	58	10059	SHCS, M10-1.5x25mm lg	1
	20483	Combo Blade - metric	4	59	10760	Cap Plug	1
	20414	Finish Blade, 6”x14” - imperial	4	60	10761	Grease Cap	4
	20479	Combo Blade, 8”x14” - imperial	4	61	10002	Pressure Plate	1
48	10001	Trowel Arm	4	62	10664	Thrust Bearing 6009-2RS	1
49	10452	HHCS, M8-1.25x10mm - metric	4	63	10003	Press Plate Cap	1
	10401	HHCS, 5/16-18”x1 1/2” lg - imperial	4	108	10286	Spiderplate assembly (blades and hardware not included)	1
50	11614	Lockwasher, 8mm - metric	4				
	10402	Lockwasher - imperial	4				

HANDLE ASSEMBLY - COMPLETE (BC90/BC436)



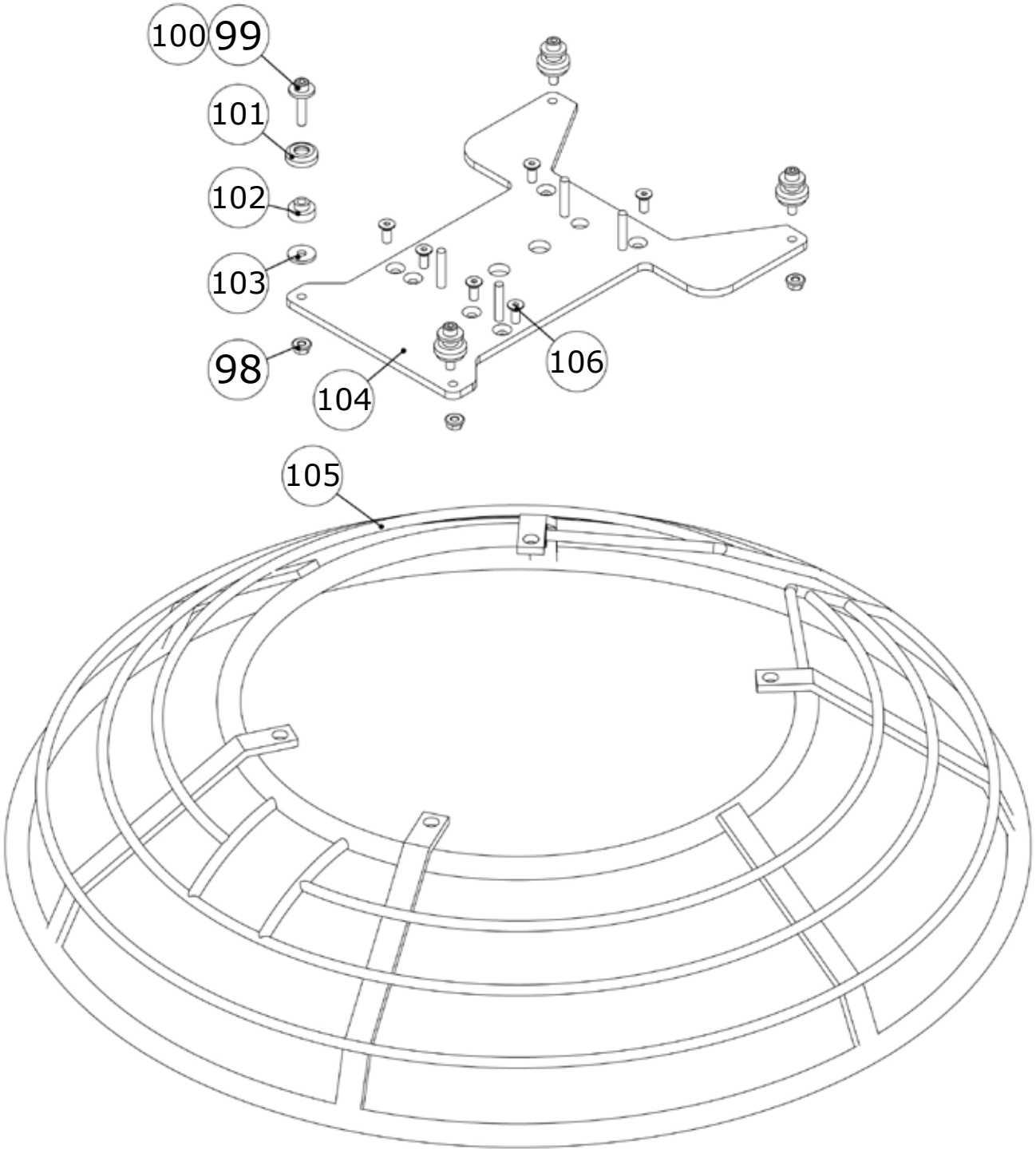
Item	Part Number	Description	Item	Part Number	Description
1	10684	Handle Grips (ea)	17	10694	SHCS, M6-1.0x6mm lg
2	21728	PHMS, M5-0.8x8mm	18	14448	Lockwasher, 6mm
3	10703	Lockwasher, 5mm, internal	19	10345	Slide bushing
4	10508	Throttle Assembly	20	10696	Spring pin, 5mm-30
5	10687	PHMS M5-0.8x10mm	21	10291	Pitch control cable
6	10688	Flat washer, 5mm	22	10346	Pulley
7	10342	Handle (tube only)	23	10697	Pin, 6mm
8	20713	Deadman switch	24	10680	Cable support block
9	10343	Pitch control knob	25	10347	Handle clamp
10	10689	Pin, 5x50mm	26	10077	HHCS, M10-2.5x35mm lg
11	10609	Bearing 51204	27	10897	Flat washer, 10mm
12	10683	Pitch control bushing	28	13349	HHCS, M10-1.5x70mm lg
13	10609	Wave washer, 18mm	29	10348	Handle clamp
14	10692	Flat washer, 20mm x 34mm x 3mm	30	11802	Lock nut, M10-1.5x16mm
15	10693	Lock pin, 18mm	31	11621	Lokwasher, 10mm
16	10344	Screw shaft	107	20650	Handle assembly (complete)

GEARBOX ASSEMBLY - COMPLETE (BC90/BC436)



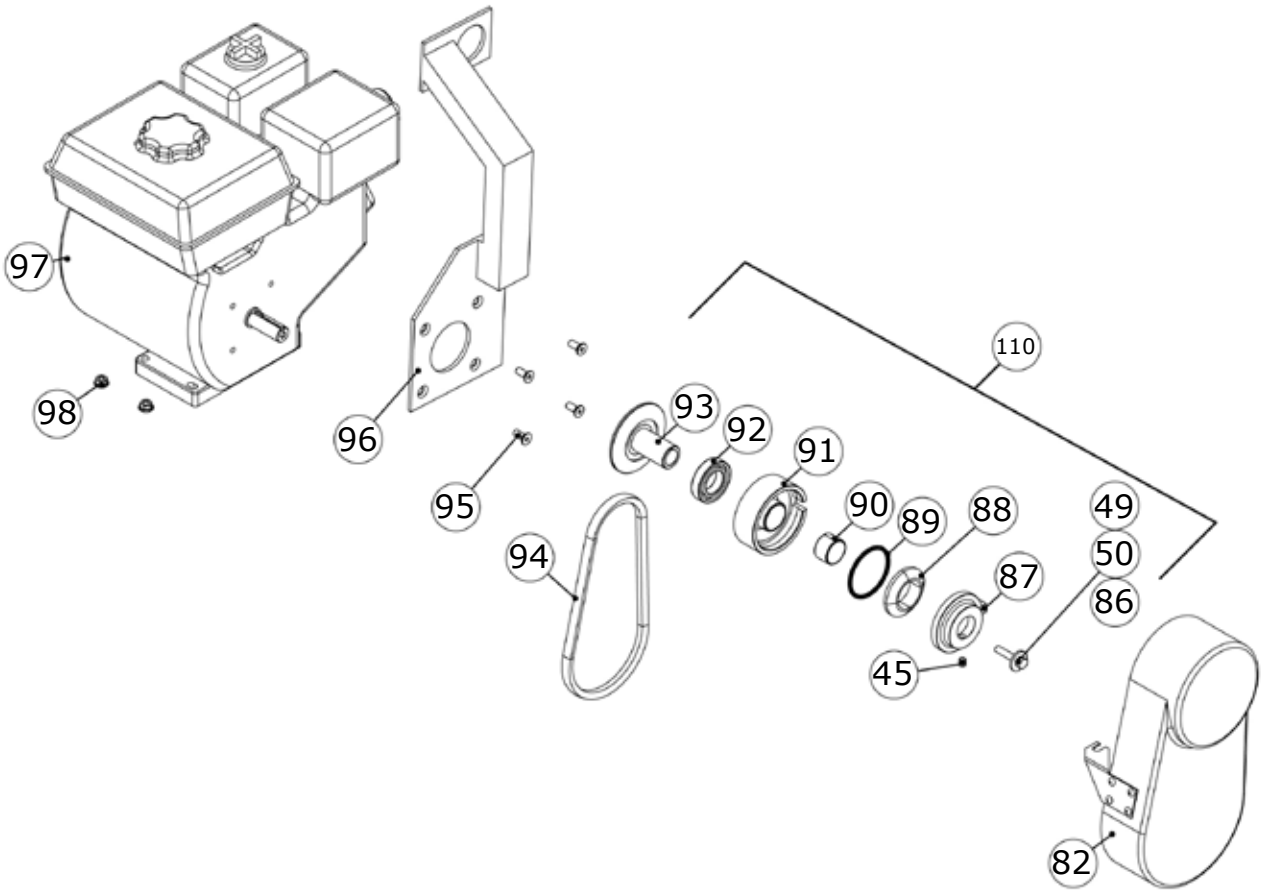
Item	Part Number	Description	Qty.	Item	Part Number	Description	Qty.
27	10897	Flat washer, 10mm	1	68	10682	Sight glass/oil gauge	1
31	11621	Lockwasher, M10	2	69	10765	Gearbox (casing only)	1
33	10741	Stud	1	70	11802	Locknut, M10-1.5, nylon insert	1
34	11834	SHCS, M10-1.5x16mm		71	10767	Key	1
37	10284	Countershaft w/worm	1	72	10232	Mainshaft	1
38	10744	Bearing 32004	1	73	10768	Bearing 6206	1
39	10745	Gasket	2	74	10769	Woodruff key	1
40	10746	O-ring	2	75	10285	Main gear	1
41	10747	Flange, sm	1	76	10770	Bearing 30305	1
42	10748	SHCS, M6-1.0x16mm	16	77	10771	Washer	1
43	10750	Oil seal 20408	1	78	10772	M10x2.5 Hex Screw	1
44	10350	Pulley	1	79	10773	Gasket	1
45	10759	SHSS, M8-1.25x10mm	1	80	10774	Gearbox cover	1
46	10751	Key, 5mm x 35mm	1	81	10775	Release valve	1
64	10762	Oil seal 274710	1	109	10100	Gearbox assembly (complete)	1
65	10763	Bolt, oil drain	1				

SAFETY RING ASSEMBLY/MTG PLATE (BC90/BC436)



Item	Part Number	Description	Qty.	Item	Part Number	Description	Qty.
98	10786	Hex lock nut, flanged, M8-1.25	4	103	10791	Flat washer, 8mm x 26mm	8
99	10787	SHCS, M801.25x40mm	4	104	10338	Mtg plate-GX160	1
100	10919	Flat washer, 5/16-8mm	4		10339	Mtg plate-GX270	1
101	10789	Bowl washer	4	105	10393	Guard ring, powder coated	1
102	10790	Rubber washer	4	106	10792	SHCS, M8-1.25x20mm	6

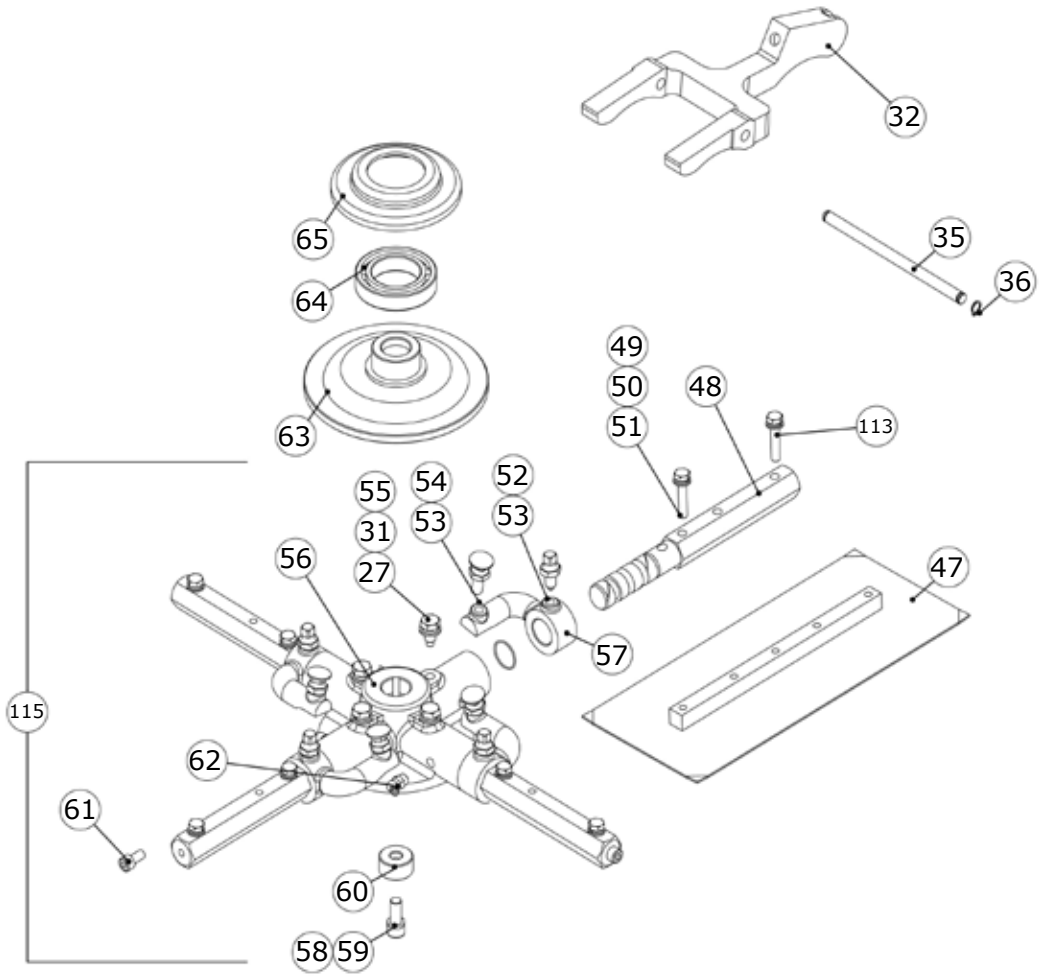
ENGINE/CLUTCH/HOIST HOOK ASSEMBLIES (BC90/BC436)



Item	Part Number	Description	Qty.	Item	Part Number	Description	Qty.
45	10750	SHSS, M8-1.25x10mm	1	92	14996	Bearing, 6006-2RS - GX160	1
49	10452	HHCS, M10-1.5x35mm - GX160	1		11044	Bearing - GX270	1
50	11614	Lockwasher, 8mm - GX160	1	93	10784	Spindle - GX160	1
82	10287	Belt Guard - GX160	1		11045	Spindle - GX270	1
86	10777	Flat washer, 45mm x 10mm x 2.85mm	1		50117	Set Screws (2) (not shown)	1
87	10778	Clutch Cover, sm - GX160	1	94	11030	Belt, A25 - GX160	1
	11015	Faceplate - GX270	1		11047	Belt, BP28 - GX270	1
88	10779	Weight - GX160	4	95	30041	FHSCS, 5/16-24 x 3/4”	4
89	10780	Clutch Spring - GX160	1	96	10201	Hoist Hook - GX160	1
	11013	Spring - GX160	1		10300	Hoist Hook - GX270	1
90	10781	Bushing, copper - GX160	1	97	21333	GX160 Honda	1
	11012	Bushing - GX270	1		21334	GX270 Honda	1
91	10782	Clutch drum - GX160	1	98	10786	Hex lock nut, flanged, M8-1.25	2
	21046	Spindle - GX270	1	110	10293	Clutch Assm. Complete, 3/4” shaft - GX160	1
					21005	Clutch Assm. Complete, 1” shaft - GX270	1

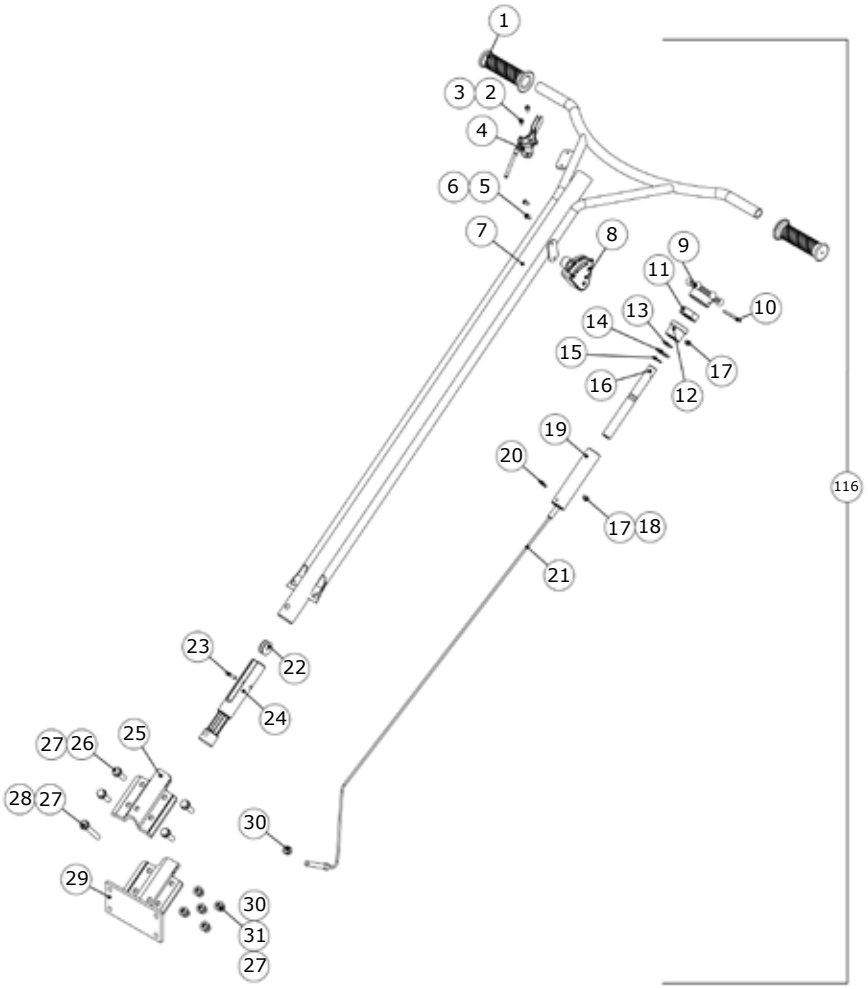
BC120/BC446
ASSEMBLY DRAWINGS AND PARTS LIST

SPIDERPLATE ASSEMBLY - COMPLETE w/o BLADES/HARDWARE (BC120/BC446)



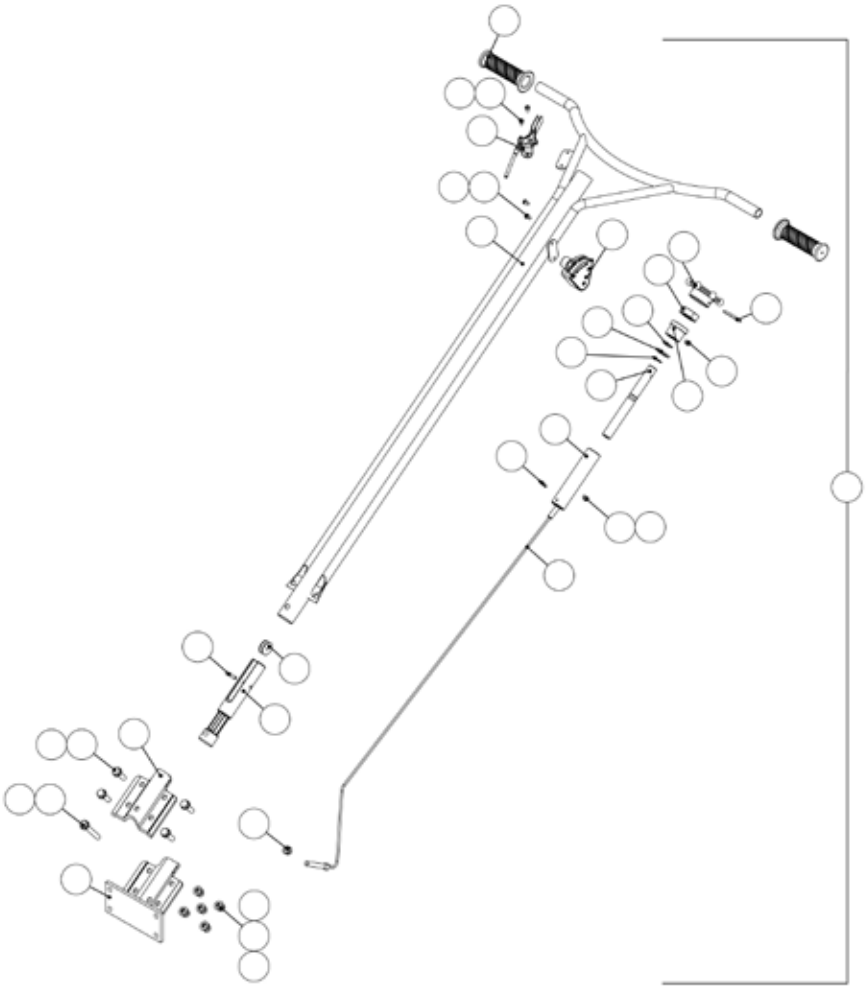
Item	Part Number	Description	Qty.	Item	Part Number	Description	Qty.
27	10897	Flat washer, 10mm	14	52	10755	Lock screw	4
31	11621	Lockwasher, M10	10	53	10867	M10 nut	8
32	10299	Yoke arm	1	54	10757	M10x35 square head bolt	4
35	10900	Yoke Pin	1	55	10758	Blade lock bolt	4
36	10743	Lock pin, 10mm	2	56	10294	Spider plate	1
47	20647	Finish blade, 140mm x 455mm (metric)	4	57	11337	Lift lever	4
	20410	Finish blade, 6x18 (imperial)	4	58	11338	M12x25 boly	1
	20411	Float blade, 10x18 (fits metric and imperial)	4	59	11339	Spring washer, 12mm	2
				60	11340	Cap plug	1
	20484	Combo blade (metric)	4	61	11341	SHCS, M8x16	4
	20480	Combo blade, 6x18 (imperial)	4	62	10761	Grease cap	4
48	11336	Trowel arm, lg	4	63	10296	Press plate, lg	1
49	10452	M8x40 Hex bolt (metric)	8	64	11342	Press bearing, 6209-2RS	1
	10401	HHCS, 5/16-18x1, 1/2”, lg (imperial)	8	65	10297	Press plate, cap	1
50	11614	Lock washer, 8mm	13	113	11745	M8-1.25 HHCS	4
51	11667	Flat washer, 8mm	12	115	10322	Spider assembly (blades and hardware not included)	1

HANDLE ASSEMBLY: FINE PITCH - COMPLETE (BC120/BC446)



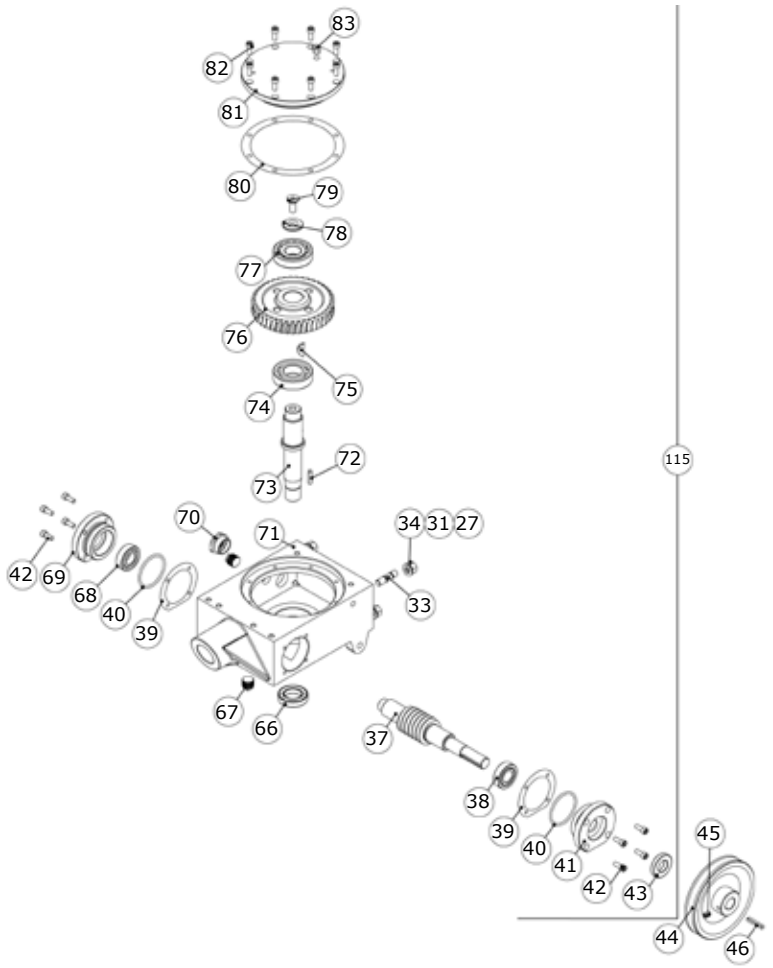
Item	Part Number	Description	Qty.	Item	Part Number	Description	Qty.
1	10684	Handle Grips (ea)	2	17	10694	M6-8 inner hex bolt	2
2	21728	RHMS, M5-0.8x8mm	2	18	14448	6mm spring washer	1
3	10793	Flat washer, 4mm	2	19	10800	Slide bushing	1
4	10508	Throttle cable assembly	1	20	10696	5mm-30 spring pin	1
5	21728	RHMS, M5-0.8x8mm	2	21	10876	Pitch control cable	1
6	10703	Lockwasher, 5mm	2	22	10877	Pulley	1
7	10794	Handle (tube only) - powder coated	1	23	10878	6mm-30 pin	1
8	20713	Deadman switch (centrifugal style)	1	24	10879	Cable support block	1
9	10795	Pitch adjust knob	1	25	10880	Handle clamp (upper)	1
10	10689	Pin, 5x50	1	26	10077	M10x35 hex bolt	4
11	10796	Bearing 51204	1	27	10897	Flat washer, 10mm	14
12	10797	Pitch control bushing	1	28	13349	M10x70-30 hex bolt	1
13	10798	Wave washer, 18mm	1	29	10898	Handle clamp (low)	1
14	10692	20mm x 34mm x 3mm plate washer	1	30	11802	M10 self lock nut	6
15	10693	Lock pin, 18mm	1	31	11621	Spring washer, 10mm	10
16	10799	Pitch adjust shaft	12	116	20670	Handle assembly (complete)	1

HANDLE ASSEMBLY: EUROPEAN SPEC. - COMPLETE (BC120/BC446)



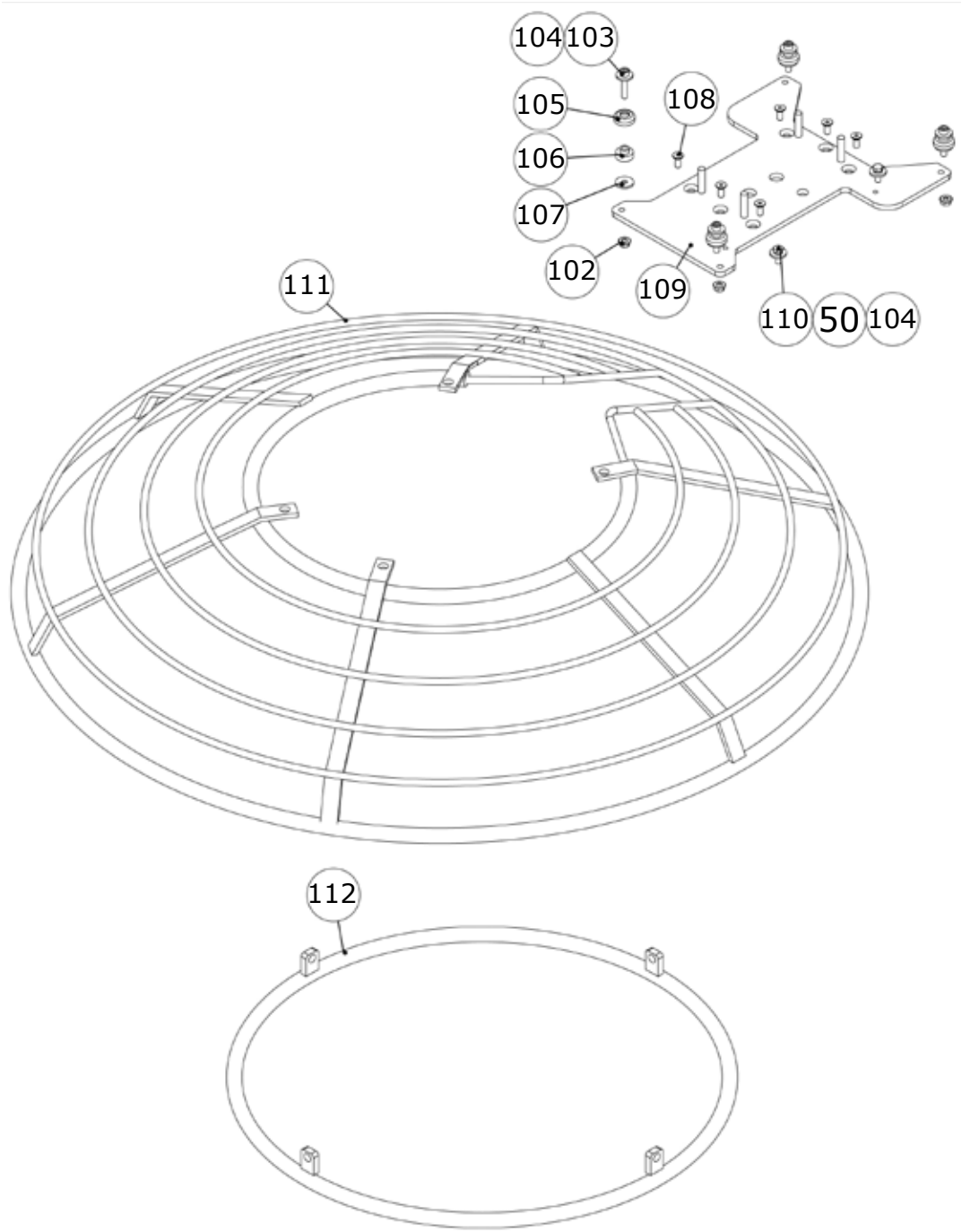
Item	Part Number	Description	Qty.	Item	Part Number	Description	Qty.

GEARBOX ASSEMBLY - COMPLETE (BC120/BC446)



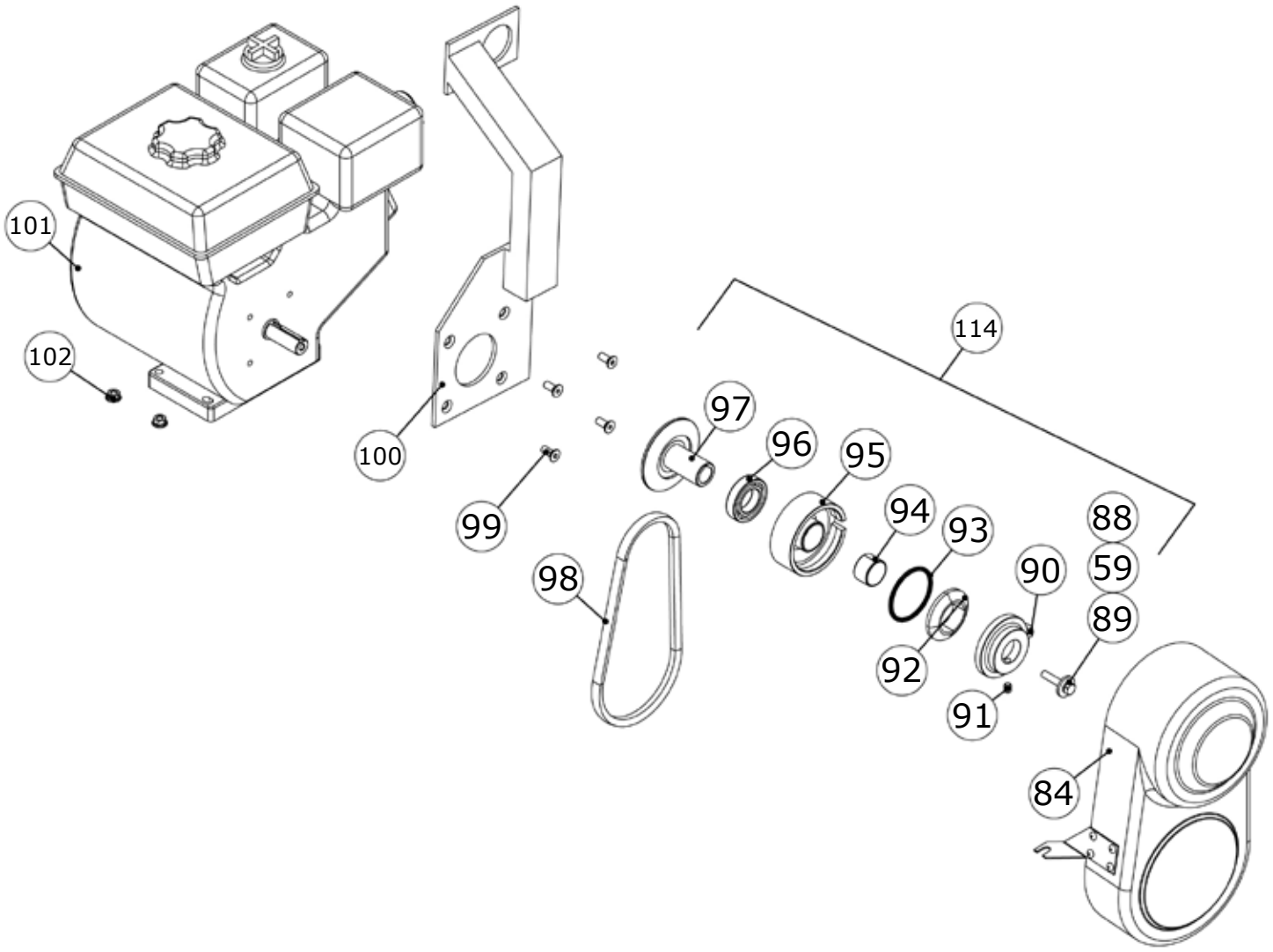
Item	Part Number	Description	Qty.	Item	Part Number	Description	Qty.
27	10897	Flat washer, 10mm	14	69	11345	Flange	1
31	11621	Lockwasher, M10	10	70	10682	Sight glass	1
33	10899	Stud, lg	4	71	11346	Casing-unpainted	1
34	11834	SHCS M10-1.5x16mm	1	72	11347	6x30 key	1
37	11075	Countershaft, lg	1	73	10316	Main shaft	1
38	10744	Bearing 32004	1	74	14256	Bearing 6207	1
39	11318	Gasket	2	75	11348	Moon key	1
40	10746	O-ring	2	76	10321	Main gear	1
41	11334	Flange	1	77	11349	Bearing 30306	1
42	31135	M6x16, inner hext bolt	16	78	11350	Worm shaft washer	1
43	10749	Oil seal 20408	1	79	10772	M10x25, hex screw	1
44	11335	Pully	1	80	11351	Gasket	1
45	10750	M8x10 bolt	2	81	11352	Gearbox cover plate	1
46	10751	Key, 5mm x 35mm	1	82	10792	M8x20 inner hex bolt	8
66	11343	Oil seal 355410	1	83	11353	Release valve	1
67	11344	Oil drain bolt	2	115	10298	Gearbox Assembly (complete)	1
68	31369	Bearing 6204	1				

SAFETY RING ASSEMBLY/MTG PLATE (BC120/BC446)



Item	Part Number	Description	Qty.	Item	Part Number	Description	Qty.
50	11614	Lock washer, 8mm	13	108	10792	M8x20 inner hex bolt	1
102	11802	M10 nut	8	109	10340	Mtg plate-GX270	1
103	10787	M8x40 bolt	4		10341	Mtg plate-GX340/GX390	1
104	10788	Plate washer, 8mm x 20mm x 2mm	4	110	11359	M8x16 hex bolt	2
105	11358	Steel bowl	4	111	20655	Guard ring (removable) 46”	1
106	10790	Rubber vibration absorber	4	112	11360	Inner stab ring	1
107	10791	Plate washer, 8mm x 26mm x 3mm	4				

ENGINE/CLUTCH/HOIST HOOK ASSEMBLIES (BC120/BC446)



Item	Part Number	Description	Qty.	Item	Part Number	Description	Qty.
59	11339	Spring washer, 12mm	2	96	11044	Bearing 6007-2RS	1
84	10331	Belt guard	1	97	11045	Spindle	1
88	11354	Hex bolt, 7/16-20	1	98	11178	Belt - B29 (Gates Only) GX270/GX340/GX390	1
89	11355	Plate washer, 10mm x 50mm x 4mm	1	99	11357	Screw bolt	4
90	11015	Faceplate	1	100	10300	Hook liift, black	1
91	11356	HHCS, M10x10	1	101	21334	Engine-GX270	1
92	11014	Weight	1		21321	Engine-GX340	1
93	11013	Clutch spring	1		21335	Engine-GX390	1
94	11012	Copper bushing	1	102	11802	M10 nut	8
95	21046	Clutch drum w/bushing	1	114	21005	Clutch assembly (complete), lg	1

TROUBLESHOOTING

WON'T START
- **Throttle fully open**
- **Hand lever wire broken**
- **No gas**
- **Dirty gas**
- **Gas filter plugged**
- **Gas line plugged**
- **Hole in gas line**
- **Gas supply valve turned off**
- **Dead-man safety switch**
- **Safety switch wire or connectors not making good contact**
- **Other engine problems (Refer to engine manual)**

STARTS BUT NO HIGH SPEED
- **Engine problems**
- **Throttle cable broken or seized**
- **Throttle lever and connectors loose or out of adjustment**
- **Clutch shoes worn**

STARTS AT HIGH SPEED, WON'T SLOW DOWN
- **Same as above**

ENGINE WON'T STOP
- **Safety switch, wire or connectors not making good contact**

ENGINE STARTS BUT WON'T TU RN TROWELS AT ANY SPEED
- **Clutch seized**
- **No weights or broken clutch**
- **Wrong belt**
- **Broken or missing key**
  - **Clutch**
  - **Pulley**
  - **Worm gear (countershaft)**
  - **Main gear**
  - **Spider plate**
- **Gearbox seized**

TROWELS TURN, ENGINE AT IDLE
- **Idle too fast**
- **Belt too tight**
- **Clutch seized**
- **Pulley out of alignment**

TROWELS BLADES WEARING UNEVENLY
- **Spider plate seized**
- **Arms bent**
- **Adjusting screws (carriage bolts) incorrectly set**

MACHINE JUMPS ON FLOOR
- **Concrete hardened on bottom of spider plate**
- **Trowels unevenly worn**
- **Spider plate seized**
- **Spider plate loose**
- **Trowel arms bent**
- **Adjusting screws (carriage bolts) incorrectly set use spider plate adjustment jig (pg,13)**
- **Mainshaft bent**

PITCH CONTROLS WILL NOT OPERATE BLADES
- **Cable broken or out of adjustment**
- **Slot screw missing (under-side of handle)**
- **Spider plate seized**
- **Pressure plate and/or yoke arm broken or badly worn**
- **Hand crank adjuster malfunctioning**

BELT WEARING RAPIDLY
- **Belt adjusted improperly**
- **Pulley out of alignment**
- **Wrong belt/defective belt**
- **Clutch sticking**
- **Gearbox seizing**

OIL LEAKS

a) Top of gearbox
   - **Engine leaks**
   - **Relief valve broken**
   - **Too much oil in gearbox**
   - **Set screw missing in cover**

b) Between end cap and gearbox (recoil side)
   - **"O" ring damaged**
   - **End cap not tight**

c) At mainshaft or countershaft
   - **Relief valve seized**
   - **Shaft and/or seal worn**

TROWEL BLADES WILL NOT TURN
- **Yoke arm broken**
- **Key sheared**

SPIDER PLATE HARD TO GREASE
- **Fittings plugged**
- **Cement in grease grooves of arms**
- **Grease fittings too tight**

SPECIFICATIONS

WALK-BEHIND TROWEL

Model	Path	Power Source (gas option)	Float Blade Size	Finish Trowel Size	Combination Blade Size	Float Plan	Operating Weight
BC90 **BC436**	30” (75 cm)	Honda GX160 OHV Honda GX270 OHV	10” x 14” (25 x 26 cm)	6” x 14” (15 x 36 cm)	8” x 14” (20 x 36 cm)	38.5” (20 x 26 cm)	Up to 195 lb. (88 Kg)
BC120 **BC446**	46” (120 cm)	Honda GX270 OHV Honda GX360 OHV Honda GX390 OHV	10” x 18” (25 x 46 cm)	6” x 18” (15 x 46 cm)	8” x 18” (20 x 46 cm)	48.5” (20 x 46 cm)	Up to 255 lb. (115 Kg)

Walk Behind Trowel (GASOLINE)	
Blade Speed (RPM) Engine Speed (RPM)	130-160 3600
Clutch Type Variable Speed	Centrifugal Yes
Gearbox Oil Gearbox Oil Capacity Engine Fuel Engine Oil Alert Cooling Starting	Agma 8 compounded gear oil 16 oz. (473 ml), 19 oz. (562 ml) Gasoline – Unleaded Yes Air Recoil Starter - Manual
Dead-man Safety Switch Fuel Capacity (approximately) Running Time (approximately)	Yes 3 Gal. (12.5 L) 2 ½ hours
Number of Blades	4
Engine Acoustic Power Lwa (dB) Engine Acoustic Pressure Lpa (Db) Level of Vibration Vibration value on the handle	97-103 82-86 1.1-1.5 7.0 aw
Options	Oil-Bath Spider Assembly Quick-Pitch Lever Hoist Hook Carry Bar

- *Power rating conforming to DIN 6270 & ISO 3048/1 Std.*
- *RPM results may vary by engine option.*

Declaration of Conformity / Certificat de conformité / Gelijkvormigheids certificaat Declaración de Conformidad/Declaração de Conformidade/Dichiarazione Di Conformita

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Bartell Morrison (USA) LLC.
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Keyport, New Jersey, United States of America
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Declare under our sole responsibility that the product to which this declaration relates is in conformity with the following standard(s) or other normative documents.
Déclarons sous notre responsabilité que le produit cette déclaration est conforme aux normes suivantes ou d'autres documents habituels.
Verklaren onder onze verantwoordelijkheid dat het product naar welke de verklaring verwijst conform de volgende standaards of anders gebruikelijke documenten is.
Declaramos bajo nuestra única responsabilidad que el producto en lo que esta declaración concierne, es conforme con la siguiente normativa u otros documentos.
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Dichiariamo sotto la ns. unica responsibilita che il prodotto al quale questa dichiarazione si riferisce, è fabbricato in conformità ai seguenti standard e documenti di normative.

EN 349:1993	Safety of Machinery - Minimum gaps to avoid crushing of parts of the human body.
EN 418:1993	Safety of Machinery - Emergency stop equipment, functional aspects - Principles for design
EN 12100-1:2003	Safety of Machinery - Basic Concepts, general principles for design - Part 1: Basic Terminology, methodology
EN 12100-2:2003	Safety of Machinery - Basic Concepts, general principles for design - Part 2: Technical Principles
EN ISO 4872:1978	Acoustics - Measurement of Airborne noise emitted by construction equipment intended for outdoor use - Method for determining compliance with noise limits.
EN ISO 5349-1:2001	Mechanical vibration. Measurement and evaluation of human exposure to hand-transmitted vibration. General requirements
EN ISO 5349-2:2001	Mechanical vibration. Measurement and assessment of human exposure to hand-transmitted vibration. Practical guidance for measurement at the workplace.

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Suivant les directive(s) déterminées:
Volgens de vastgestelde richtlijnen:
Siguiendo las directiva(s):
No sequimento das clausulas da Directiva(s):
Seguendo quanto indicato dalla Direttiva(s):

98/37/EC	Machinery Directive
2000/14/EC	Noise Directive
2001/95/EC	General Product Safety Directive
2002/95/EC	Reduction of Hazardous Waste Directive

Technical Characteristics:
Caractéristiques techniques:
Technisch gegevens:
Características Técnicas:
Caracteristicas Técnicas:
Qualitàs di tecnico:

Model Modéle Type Modelo Modelo Modello	MachineSerial Number Numéro de Série machine Serienummer machine Máquina número de série Numero de serie da maquina Numero di seria la macchina	Engine Serial Number Numéro de Série moteur Serienummer motor Motor número de série Numero de serie do motor Numero di seria la motore	Weight Masse Gewicht Masa Massa Massa
B436 Walk Behind Power Trowel			Lbs (kg) 125 (56.8)

Noise Level Puissance acoustique Geluidniveau Nivel Sonoro Nivel del Ruido Potenza Acustica	Pressure level Pression acoustique Geluidsdrukniveau Nivel Acustico Pressão Acústica Pressione Acustica	Vibration level Niveau de vibration Vibratieniveau Nivel de Vibracion Nivel de Vibração Livello di Vibrazione
Lwa (dB)	Lpa (Db)	a_{hv} (m/s^2)
98	99	1.5

The Technical Construction file is maintained at:
Les fiches techniques de construction sont gardées à:
Het technische constructie document wordt bewaard te:
El archivo técnico de construcción se mantiene en:
O arquivo técnico de construção é mantido no (a):
L'originale dossier tecnico di construzione è conservato presso:

Bartell Morrison Inc.
375 Annagem Blvd.
Mississauga, Ontario, Canada
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The authorized representative is:
Le représentant autorisé est:
Gemachtigd vertegenwoordiger is:
La representación autorizada es:
O representante autorizado é:
Il rappresentate autorizzato:

Mr. Richard Stanley
V.P. of Operations
Bartell Morrison Inc.
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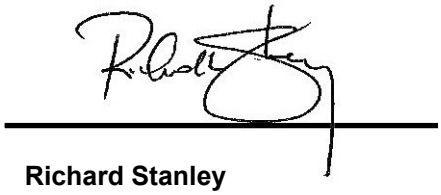
Mississauga, Ontario, Canada
L5T 3A7
905-364-4185
Facsimile: 905-364-4202

Signature of Authorized Person:
Signature de la personne autorisée:
Handtekening van gemachtigd persoon:
Firma de la persona autorizada:
Assinatura de pessoa autorizada:
Firma della persona autorizzata:



Typed name of Authorized Person:
Nom dactlyographié de la personne autorisée:
Getypte naam van gemachtigd persoon:
Nombre de la persona autorizada:
Nome datilografado da pessoa autorizada:
Nome della persona autorizzata:

Richard Stanley

Title of Authorized Person:
Titre de la personne autorisée:
Functie van gemachtigd persoon:
Cargo de la persona autorizada:
Titulo da pessoa autorizada:
Posizione della persona autorizzata:

V.P. of Operations

Date and place of issue:
Date et place d'émission:
Datum en plaats van afgifte:
Fecha y lugar de emision:
Data e lugar de emissão:
Data e luogo di emissione:

08.29.2012

Mississauga, Ontario, Canada

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